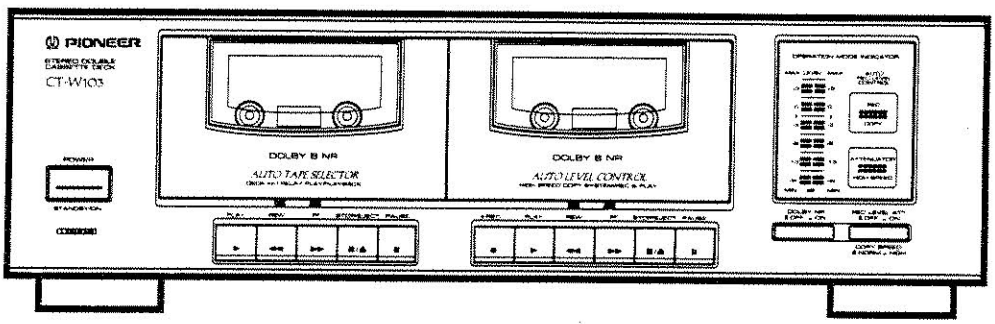
# Operating Instructions

## STEREO DOUBLE CASSETTE DECK

# CT-W103




Thank you for buying this PIONEER product.
Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.
In some countries or regions, the shape of the power plug and power outlet may sometimes differ from that shown in the explanatory drawings. However, the method of connecting and operating the unit is the same.

**WARNING:** **TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

### IMPORTANT NOTICE

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep it in a secure area. This is for your security.

**Information to user**

Alteration or modifications carried out without appropriate authorization may invalidate the users right to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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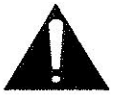
*The Art of Entertainment*

# IMPORTANT

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

**CAUTION:**
**TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

# SAFETY INSTRUCTIONS

**READ INSTRUCTIONS** – All the safety and operating instructions should be read before the appliance is operated.

**RETAIN INSTRUCTIONS** – The safety and operating instructions should be retained for future reference.

**HEED WARNING** – All warnings on the appliance and in the operating instructions should be adhered to.

**FOLLOW INSTRUCTIONS** – All operating and use instructions should be followed.

**WATER AND MOISTURE** – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

**LOCATION** – The appliance should be installed in a stable location.

**WALL OR CEILING MOUNTING** – The appliance should not be mounted to a wall or ceiling.

**VENTILATION** – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

**HEAT** – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

**POWER SOURCES** – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

**POWER-CORD PROTECTION** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

**POLARIZATION** – If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

**CLEANING** – The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

**POWER LINES** – An outdoor antenna should be located away from power lines.

**NONUSE PERIODS** – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

**OBJECT AND LIQUID ENTRY** – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

**DAMAGE REQUIRING SERVICE** – The appliance should be serviced by a Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged.
- Objects have fallen, or liquid has been spilled into the appliance.
- The appliance has been exposed to rain.
- The appliance does not appear to operate normally or exhibits a marked change in performance.
- The appliance has been dropped or the enclosure damaged.

**SERVICING** – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

**OUTDOOR ANTENNA GROUNDING** – If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges.
In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

**CART** – An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

NEC — NATIONAL ELECTRIC CODE

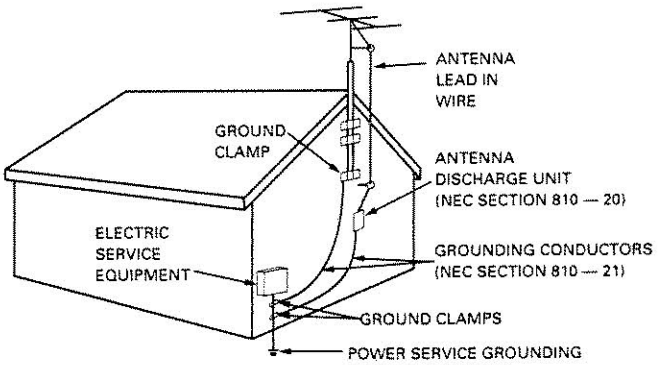



FIG.A

## *Dear Customer:*

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. This manufacturer and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion—and, most importantly, without affecting your sensitive hearing.

Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing. Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.

**To establish a safe level:**

- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

**Once you have established a comfortable sound level:**

- Set the dial and leave it there.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

## We Want You Listening For A Lifetime

Used wisely, your new sound equipment will provide a lifetime of fun and enjoyment. Since hearing damage from loud noise is often undetectable until it is too late, this manufacturer and the Electronic Industries Association's Consumer Electronics Group recommend you avoid prolonged exposure to excessive noise. This list of sound levels is included for your protection.

| Decibel Level | Example |
|---|---|
| 30 | Quiet library, soft whispers |
| 40 | Living room, refrigerator, bedroom away from traffic |
| 50 | Light traffic, normal conversation, quiet office |
| 60 | Air conditioner at 20 feet, sewing machine |
| 70 | Vacuum cleaner, hair dryer, noisy restaurant |
| 80 | Average city traffic, garbage disposals, alarm clock at two feet. |

**THE FOLLOWING NOISES CAN BE DANGEROUS UNDER CONSTANT EXPOSURE**

| | |
|---|---|
| 90 | Subway, motorcycle, truck traffic, lawn mower |
| 100 | Garbage truck, chain saw, pneumatic drill |
| 120 | Rock band concert in front of speakers, thunderclap |
| 140 | Gunshot blast, jet plane |
| 180 | Rocket launching pad |

Information courtesy of the Deafness Research Foundation.

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# INSTALLATION

**When installing the cassette deck, avoid locations with high temperatures or humidity, and make sure that the location is well ventilated.**

- Do not install the cassette deck in locations subject to direct sunlight, or near a space heater or other heating device, as this may cause damage to the finish or the internal parts.
- Malfunctions may also result if the cassette deck is installed in an excessively humid or dusty location. Do not install the cassette deck next to kitchen counters or other locations subject to oily smoke or humidity.
- If the cassette deck is placed directly on top of an amplifier, it may pick up humming or other noises. Also, if the amplifier generates a large amount of heat, the cassette deck may malfunction.
- If the cassette deck is located near a television set, it may pick up interference noise, which will be recorded as a whistling sound on the tape. If this happens, move the cassette deck further away from the television set or turn the television set off when operating the cassette deck.
- Do not place a cloth over the deck, or block the ventilation slots in any way. The ventilation slots on this deck are necessary to keep internal parts cool. If they are blocked, the deck may malfunction.

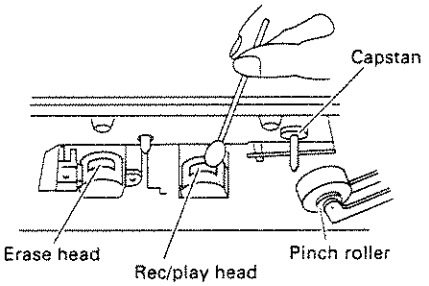
## CONDENSATION

When the cassette deck is moved from a cold location to a warm location, or when the temperature of the room changes suddenly, condensation may form on the mechanical parts and affect the performance of the tape. If this occurs, wait for about one hour to allow the cassette deck to adjust to the room temperature.

THE POWER SWITCH IS SECONDARY CONNECTED AND THEREFORE DOES NOT SEPARATE THE UNIT FROM MAINS POWER IN STANDBY POSITION.

# MAINTENANCE

## CLEANING THE HEADS, PINCH ROLLERS AND CAPSTANS




The heads, pinch rollers and capstans are likely to get dirty quite easily. If these parts (particularly the heads) get dirty, the high frequency components of recording will not be repro-duced and the stereo balance will be impaired, resulting in a deterioration of the playback sound. It is therefore recommended that the head section be cleaned regularly.

1. Set the POWER switch to STANDBY.
2. Press the STOP/EJECT (■/⏏) button to open the cassette door.
3. Dip a cleaning swab in cleaning fluid and use it to wipe the heads, capstans and pinch rollers.

***NOTE:***
*After cleaning the head section, do not load a tape until the cleaning fluid has dried completely (about two or three minutes).*

## DEMAGNETIZING THE HEADS

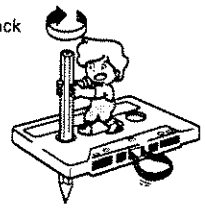
After using the cassette deck for a period of time, the heads will become magnetized. The same effect will occur if a magnetized screwdriver, magnet or other magnetized object is brought too close to the heads. When the heads become magnetized, high-frequency sounds will be lost during recording or playback, and interference noise may also occur. The periodic use of a cassette-type head demagnetizer (available from your dealer) is recommended in order to demagnetize the heads of the deck.
When demagnetizing the heads, make sure that the POWER switch of the cassette deck is set to ON. However, be sure to turn down the amplifier's volume control to its lowest position, and disconnect any headphones from the headphones jack. For detailed instructions, refer to the operating instructions of the head demagnetizer.

## CLEANING THE FRONT PANEL

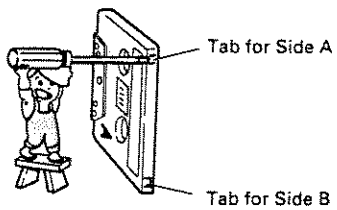
Clean the cassette deck regularly with a soft cloth. If the front panel becomes soiled, moisten a soft cloth with a weak solution of neutral detergent (diluted in five to six parts water), wring the cloth well, and wipe the panel clean. Never use volatile cleaners like thinners, benzine or alcohol because they will damage the panel finish.

# HANDLING CASSETTE TAPES

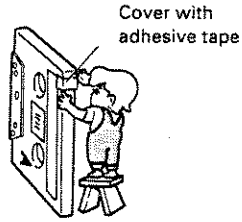
**A**



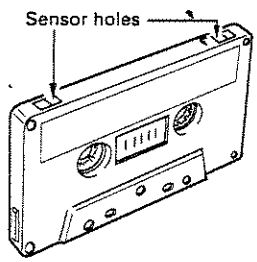

**B**




**C**




**D**




TYPE II (HIGH/$CrO_2$) tape

## CHECK CASSETTE BEFORE USE

Check the following items betore loading a cassette tape:

### Is the tape loose, or is some of the tape outside the cassette?

If some of the tape is loose or projecting outside the cassette shell, the tape may not properly enter between the capstan and pinch roller. This will prevent the tape from being supplied properly, and may even damage the tape itself. In such cases, insert a pencil into the reel hole and take up the slack (Fig. A).

Some cassette tapes come with a plastic or thick paper stopper to prevent the tape from becoming slack. Remove this stopper when loading the cassette and replace it after using the cassette.

### Are the accidental erasure prevention tabs intact?

These tabs allow you to prevent important recordings from being erased accidentally. When the tab on the cassette shell is broken off (Fig. B), it is not possible to activate the recording function, so valuable recordings will not be erased by mistake.

To re-record on a cassette whose tab has been broken off, simply stick a piece of doubled adhesive tape over the hole (Fig. C).

When using TYPE II (HIGH/$CrO_2$) tape, be careful not to block the sensor holes with the tape (Fig. D). If the holes are blocked, the automatic tape selector mechanism will not operate correctly.

***NOTES:***

- *The accidental erasure prevention tab for each side is the one located on the top left when the side that you want to protect is facing you.*
- *When breaking off the tab, do not use a magnetized screwdriver.*

## AUTOMATIC TAPE SELECTOR FUNCTION

This cassette deck is equipped with an automatic tape selector function which utilizes the sensor holes on the tape cassette to determine the type of tape being used. The cassette deck is then set to match the tape recording bias and equalization.

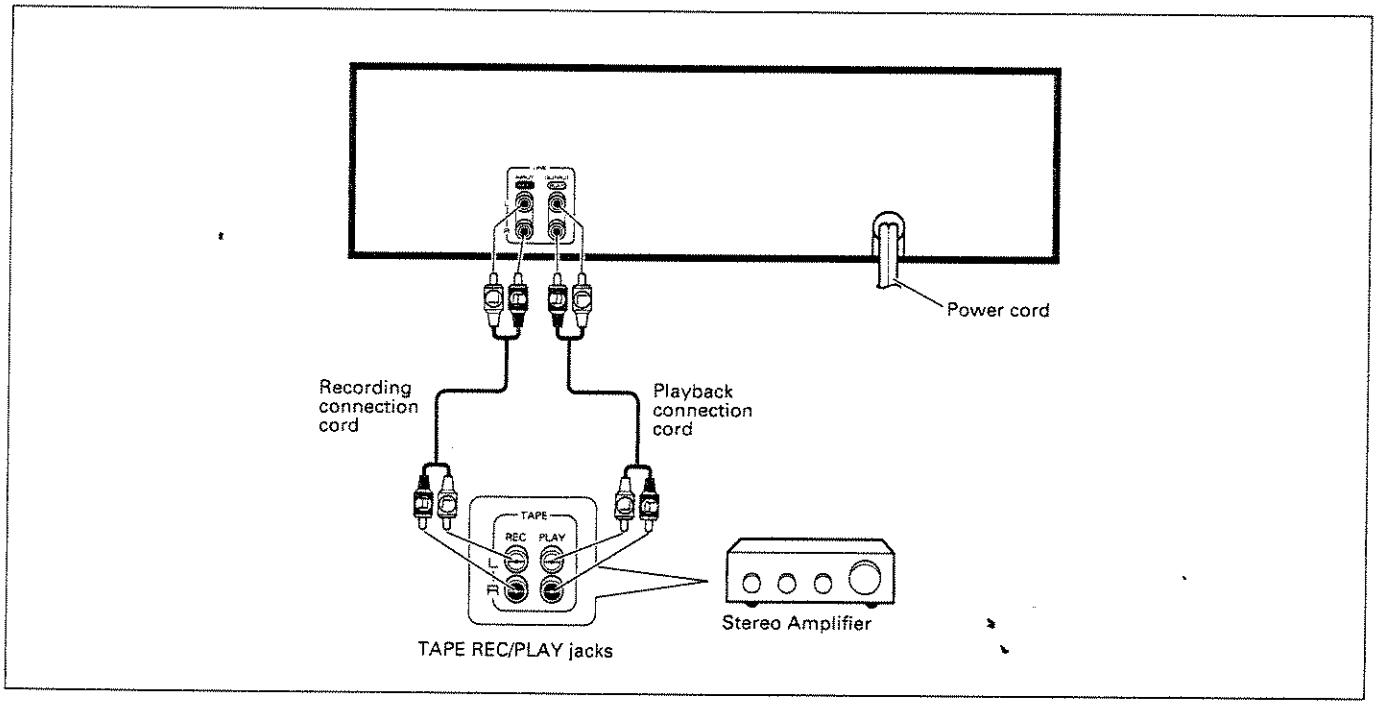
***NOTES:***

- *When using TYPE II (HIGH/$CrO_2$) tapes, make sure that the tapes have sensor holes.*
- *Make sure that the sensor holes on the cassette are not blocked; otherewise the tape selector mechanism will not function properly.*
- *Do not use TYPE III (FeCr) tapes.*
- *Do not use TYPE IV (METAL) tape for recording.*

## TIPS ON CASSETTE TAPES

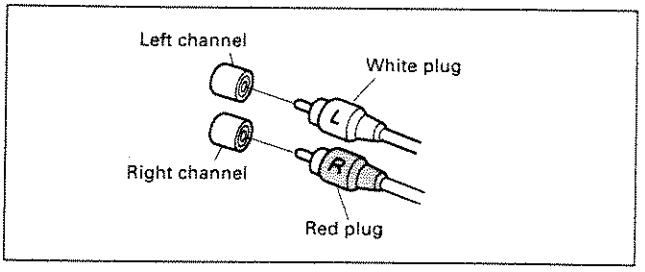
- Leader tape (which cannot be recorded on) is provided at the beginning of a cassette tape. Let the tape run for about 5 seconds before starting to record, to allow the leader tape to clear the recording head.
- Do not leave a cassette tape exposed to the environment. Store the cassette in its case after use so that dust and dirt do not adhere to the tape, and so the tape will not get slack. Store tapes in a location free from magnetism, dust, dirt, oil, heat and humidity.
- Because C-120 tapes are very thin, they can easily jam in the pinch rollers and capstan, and they often are subject to other problems such as irregular winding. It is best not to use them with this deck.
- If cassette tapes are irregularly wound, the tape may get jammed in the rollers. This can cause damage to both the tape and the deck. If you are not certain whether the tape is wound evenly, fast forward or rewind the tape from beginning to end, to make sure that the tape is properly wound.

# CONNECTIONS




- **Read through the operating instructions of the stereo components which you intend to connect to this deck.**
- **Turn the power on only after making all the connections.**
- **Make sure that all of the connection plugs are inserted securely, as improper connections may generate noise.**

## CONNECTING THE RECORDING AND PLAYBACK CORDS



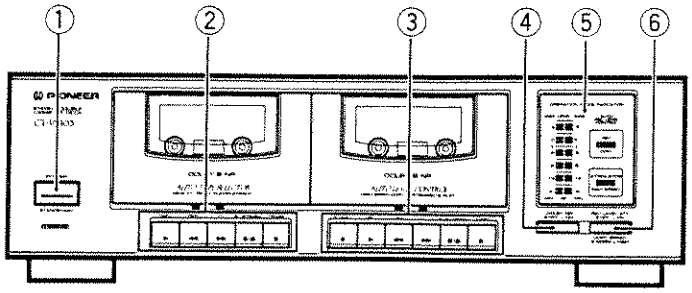

Connect the TAPE jacks of your amplifier to the LINE jacks of the cassette deck. Be sure to connect the REC (INPUT) jacks of the deck to the recording (output) jacks of the amplifier, and the PLAY (OUTPUT) jacks of the deck to the play (input) jacks of the amplifier.

- Connect the plugs properly.
  Left channel – White plug
  Right channel – Red plug

## CONNECTING THE POWER CORD

Insert the power cord of the cassette deck into the accessory AC outlet of your amplifier, or into a normal household outlet.

# FRONT PANEL FACILITIES




### ① POWER (STANDBY/ON) switch

***NOTE:***

*The POWER switch activates the secondary transformer only. Even when the switch is in the STANDBY position, there will be a power flow to the deck's circuits as long as the power cord is connected to a power outlet.*

### ② Deck I operation buttons

| | |
|---|---|
| ► (PLAY) | : Playback |
| ◄◄ (REW) | : Rewind |
| ►► (FF) | : Fast forward |
| ■/⏏ (STOP/EJECT) | : Stop/Eject |
| II (PAUSE) | : Pause |

### ③ Deck II operation buttons

| | |
|---|---|
| ● (REC) | : Recording |
| ► (PLAY) | : Playback |
| ◄◄ (REW) | : Rewind |
| ►► (FF) | : Fast forward |
| ■/⏏ (STOP/EJECT) | : Stop/Eject |
| II (PAUSE) | : Pause |

### ④ DOLBY* NR switch (▮ OFF, ▁ ON)

*

- *Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.*
- *"DOLBY" and the double-D symbol ⊡⊡ are trademarks of Dolby Laboratories Licensing Corporation.*

### ⑤ Function display

### ⑥ REC LEVEL ATT button (▮ OFF, ▁ ON)/ COPY SPEED button (▮ NORM, ▁ HIGH)

- If the sound is distorted , set this button to ON to attenuate the level and reduce distortion.
- When recording from one tape to another tape, this button can be used to switch between NORMAL SPEED and HIGH SPEED recording.

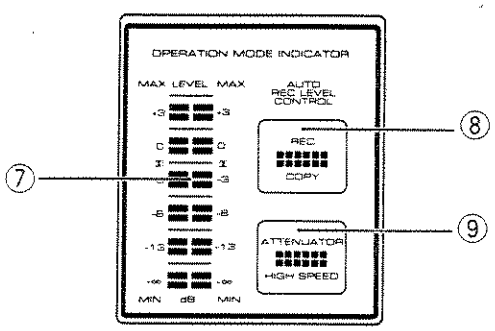
### ■ Dolby NR System

Dolby NR systems are designed to reduce the amount of tape hiss, mainly in the treble components. During recording, the high-pitched pianissimo sounds which are most characteristic of audible noise are boosted, and during playback, only these boosted sections are attenuated, so that the sound is returned to normal. As a result, the noise is attenuated by an amount equal to the boosting in the treble range. The Dolby NR ON system reduces noise in the treble range, cutting tape hiss and expanding the dynamic range.

***NOTE:***

*When a tape has been recorded using the Dolby NR system, make sure that the DOLBY NR switch is set to the ON position during playback.*

## Function display




### ⑦ Level meter

- The ⊡⊡ between the –3 and 0 mark indicates the reference level for the Dolby NR system.

### ⑧ REC/COPY indicator

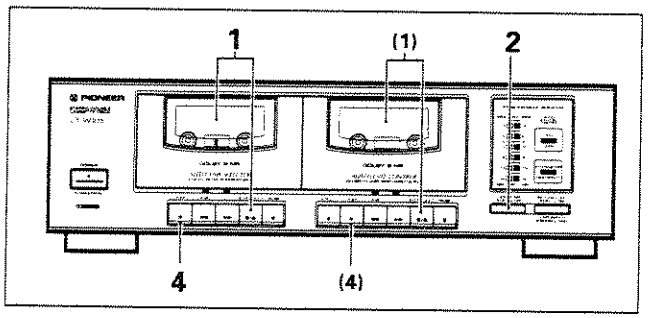
Lights up during recording or copying.

### ⑨ ATTENUATOR/HIGH SPEED indicator

- Lights up during recording when the REC LEVEL ATT switch is set to ON.
- Lights up during High speed copying.

# PLAYBACK

## SINGLE PLAYBACK (Either Deck I or Deck II)




1. **Press the STOP/EJECT (■/⏏) button, and load a prerecorded tape in Deck I or II.**
2. **Set the DOLBY NR switch.**
   - Always set the switch to the same position that was used for recording.
3. **Set the stereo amplifier for tape playback.**
4. **Press the PLAY (►) button of either Deck I or II.**

### To stop playback temporarily

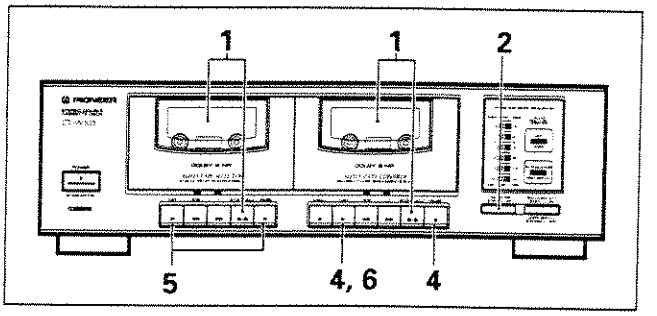
Press the PAUSE (II) button.

- To resume playback, release press the PAUSE (II) button.

### To stop playback

Press the STOP/EJECT (■/⏏) button.

## RELAY PLAYBACK (Deck II → Deck I only)




When relay playback mode is selected, continuous playback can be performed. When the tape in Deck II reaches the end and stops, the Deck I will automatically begin playback.

1. **Press the STOP/EJECT (■/⏏) button, and load prerecorded tapes in Deck I and II.**
   - Make sure that both tapes have been recorded using the same Dolby NR setting.
2. **Set the DOLBY NR switch.**
   - Always set the switch to the same position that was used for recording.
3. **Set the stereo amplifier for tape playback.**
4. **Press the PAUSE (II) button and PLAY (►) button of the Deck II.**
5. **Press the PAUSE (II) button and PLAY (►) button of the Deck I.**
6. **Press the PAUSE (II) button of the Deck II.**
   - Playback will start.

### To stop playback temporarily

Press the PAUSE (II) button.

- To resume playback, release press the PAUSE (II) button.

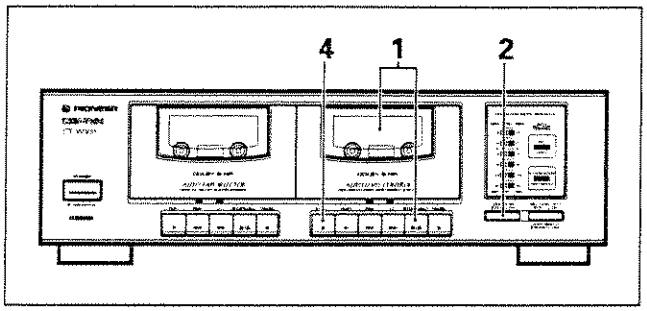
### To stop playback

Press the STOP/EJECT (■/⏏) button of the deck which is currently playing.

# RECORDING (Deck II only)

## Erasure Prevention Tabs

The REC (●) button will not function when the erasure prevention tabs of the loaded cassette tape have been removed. (See page 5). Do not press the REC (●) button with unreasonable force. When recording on both sides, make sure that both tabs are intact.




1. **Press the STOP/EJECT (■/⏏) button, and load a tape for recording in Deck II.**
2. **Set the DOLBY NR switch.**
3. **Prepare the audio source from which you wish to record. Turn on the stereo amplifier and prepare it for playback of the desired audio source.**
4. **Press the REC (●) button to begin recording.**

Although the recording level is set automatically (Auto level control), if noticeable distortion results, press the REC LEVEL ATT button to the ON (▂) position.

### To stop recording temporarily

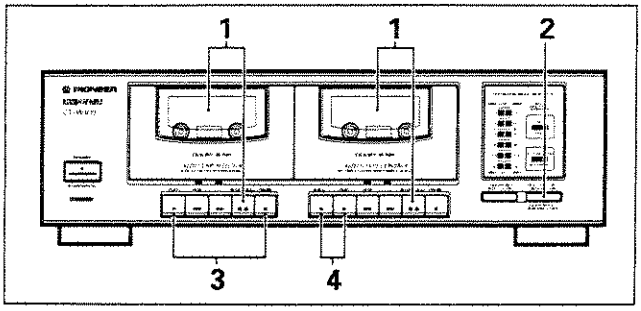
Press the PAUSE (II) button.

- To resume recording, release press the PAUSE (II) button.

### To stop recording

Press the STOP/EJECT (■/⏏) button.

## TAPE COPYING (From Deck I to Deck II)




- The tape copying function lets you copy the contents of a tape from Deck I to Deck II.
- The COPY SPEED button is used to select either normal speed copying, or high speed copying (copying at twice the normal playback speed).

1. **Press the STOP/EJECT (■/⏏) button, and load a prerecorded tape in Deck I and a blank tape in Deck II.**
2. **Press the COPY SPEED button to select either NORMAL (▮) or HIGH (▂) Speed.**
   NORMAL (▮): Tape copying at normal speed, allowing you to listen to playback.
   HIGH (▂): Tape copying at twice the normal speed (the HIGH SPEED indicator lights when copying begins). Playback will still be audible.
3. **Press the Deck I PAUSE (II) button, then the PLAY (►) button to set the unit to the playback standby mode.**
4. **Press the the Deck II REC (●) button.**
   - Deck I will begin playback, and simultaneously, Deck II will begin recording.

### To Stop Copying

Press the STOP/EJECT (■/⏏) button of both deck.

***NOTES:***

- *If a nearby television set is on while high speed copying is being performed, a high pitched interference sound may be heard on the tape. In this case, either use the normal speed copying function, or turn off the television.*
- *The tape in Deck II will be recorded with the same Dolby NR characteristics as the tape in Deck I, regardless of the setting of the DOLBY NR switch. For example, if the original tape was recorded with Dolby NR ON, the copy will also have Dolby NR ON.*
- *When performing tape copying, we recommend that you use tapes of the same length for recording and playback.*
- *The sound quality of the copied tape will be somewhat less than that of the original. Therefore when making more than one copy, always record from the original tape (do not make a copy of a copy).*
- *When making tape copies, the recording level does not have to be adjusted.*
- *Do not change the setting of the COPY SPEED button during tape copying.*

# TROUBLESHOOTING

Incorrect operations are sometimes mistaken for malfunctions. If you think that there is something wrong with this deck, check the table below to see if you can correct the problem yourself. Sometimes, the trouble may be caused by another piece of equipment, or by faulty connections. If the trouble cannot be rectified even after all of the checks below have been performed, contact your nearest PIONEER authorized dealer, or the place of purchase.

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **POWER** | | |
| The power does not go on. | ● The power cord is unplugged.<br>● The component (amplifier, timer, etc.) to which the cord is attached is off. | ● Insert the power cord correctly.<br>● Turn the stereo amplifier or audio timer on. |
| **CASSETTE DOOR** | | |
| The door does not open. | ● The deck is not in stop mode.<br>● Power was turned off with the tape moving. | ● Press the STOP/EJECT (■/⏏) button.<br>● Turn power on. |
| The door does not close. | ● The cassette is not properly loaded. | ● Reinsert the cassette. |
| **PLAYBACK** | | |
| The tape stops immediately. | ● The tape is completely wound.<br>● The tape is slack. | ● Turn the tape over (playback in opposite direction).<br>● Rewind the tape.<br>● Take up slack (see page 5). |
| The level meter does not work. | ● The tape is not recorded.<br>● **The tape heads are dirty.** | ● Replace the tape with a recorded one.<br>● **Clean the heads (see page 4).** |
| There is no sound. | ● The amplifier input selector is not set properly.<br>● The amplifier volume is too low.<br>● There are connection problems (wrong connection, poor contact, broken wire). | ● Set the input selector to select the deck.<br>● Turn up the volume.<br>● Check all connections (see page 6). |
| **RECORDING** | | |
| The recording indicator does not light. | ● The erasure prevention tabs are broken off. | ● Replace the cassette with one whose tabs are intact, or cover the hole with a piece of tape (see page 5). |
| The level meter does not work. | ● The amplifier is not delivering a signal to the deck.<br>● There are connection problems (wrong connection, poor contact, broken wire). | ● Set the amplifier to select the recorded signal.<br>● Check all connections (see page 6). |
| The tape stops immediately. | ● The tape is completely wound.<br>● The tape is slack. | ● Turn the tape over (recording in opposite direction).<br>● Rewind the tape.<br>● Take up slack (see page 5). |
| The tape cannot be recorded. | ● **The tape heads are dirty.** | ● **Clean the heads (see page 4).** |

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| **POOR SOUND QUALITY** | | |
| The sound is unstable or interrupted. | ● **The heads, pinch rollers and capstans are dirty.**<br>● The tape is not uniformly wound. | ● **Clean the heads, etc. (see page 4).**<br>● Fast forward or rewind the tape completely. |
| There are no high frequencies. | ● A tape recorded without Dolby NR is being played back with the DOLBY NR switch set to ON position.<br>● **The heads are dirty.** | ● Set the DOLBY NR switch to OFF.<br>● **Clean the heads (see page 4).** |
| High frequencies are emphasized. | ● A Dolby NR tape is being played back with the DOLBY NR switch set to OFF. | ● Set the DOLBY NR switch to the ON position used for recording. |
| The sound from previous recordings remains when the tape is re-recorded. | ● **The heads are dirty.** | ● **Clean the heads (see page 4).** |
| The sound is distorted. | ● The recorded signal itself is distorted.<br>● **The heads are dirty.**<br>● The recording level is set too high. | ● Replace the cassette tape.<br>● **Clean the heads (see page 4).**<br>● Press the REC LEVEL ATT button to ON. |
| There is too much noise. | ● A noisy tape is being used.<br>● There is a faulty connection.<br>● **The heads are dirty.**<br>● The heads are magnetized. | ● Replace the cassette tape.<br>● Check all connections (see page 6).<br>● **Clean the heads (see page 4).**<br>● Demagnetize the head with a demagnetizer (see page 4). |
| The sound is abnormal. | ● A Type IV (Metal) tape is being used. | ● This unit is not designed to operate with Type IV (Metal) tapes. |

# SPECIFICATIONS

System ..... 4 track, 2-channel stereo
Heads ..... "Hard Permalloy" recording/playback head x 1
"Hard Permalloy" playback head x 1
"Ferrite" erasing head x 1
Motor ..... DC servo motor x 1
Wow and Flutter ..... 0.15% (WRMS, JIS)
Fast Winding Time ..... Approx. 115 seconds (C-60 tape)

Frequency Response (at –20 dB recording level)
TYPE II (HIGH/$CrO_2$) tape ..... 30 to 16,000 Hz
TYPE I (Normal) tape ..... 30 to 16,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF ..... More than 56 dB
Noise Reduction Effect
Dolby NR ON ..... More than 10 dB (at 5 kHz)
Harmonic Distortion ..... No more than 1.0%
(at –4 dB: 160 nwb/m)
Input (Sensitivity)
LINE (INPUT) ..... 112 mV (Input impedance 24 kΩ)
Output (Reference level)
LINE (OUTPUT) ..... 0.5 V (Output impedance 1.9 kΩ)

## Miscellaneous

Power Requirements
Australian model ..... AC 230 ~ 240 V, 50/60 Hz
U.S. model ..... AC 120 V, 60Hz
Power Consumption ..... 15 W
Dimensions ..... 420 (W) x 130 (H) x 250 (D) mm
Weight ..... 4.2 kg

## Accessories

Operating instructions ..... 1
Connection cord with pin plugs ..... 2

## Features

- DOLBY NR
- Synchronized copy start
- High-speed and normal-speed copy (Deck I → Deck II)
- Relay playback (Deck II → Deck I)
- 6-segment LED level meter
- Automatic tape selectors
- Automatic recording level control
- REC LEVEL Attenuator

***NOTE:***
*Specifications and design subject to possible modifications without notice due to improvements.*

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